

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

RECEIVED

DEC 15 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Revision of the Commission's)
Rules to Ensure Compatibility)
with Enhanced 911 Emergency)
Calling Systems)

CC Docket 94-102

DOCKET FILE COPY ORIGINAL

COMMENTS OF THE
CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION

Michael F. Altschul
Vice President and
General Counsel

Randall S. Coleman
Vice President for
Regulatory Policy and Law

CELLULAR TELECOMMUNICATIONS
INDUSTRY ASSOCIATION
1250 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036

December 15, 1995

No. of Copies rec'd 0811
List A B C D E

TABLE OF CONTENTS

SUMMARY.....	i
I. There Is No Basis for the Commission to Require CMRS Carriers to Connect 911 Calls.....	3
A. Carriers and the Public Safety Community Support the Commission's Proposal to Limit 911 Service to "Service Initialized" Users.....	4
B. There Is No Basis to Mandate the Provision of "Roamer" Access.....	7
II. There Is No Basis to Require Mobile Units to Select the Strongest Signal for 911 Calls.....	10
CONCLUSION.....	13

SUMMARY

The Petition filed by the Ad Hoc Alliance for Public Access to 911 ("Alliance") asks the Commission to amend its rules to require cellular carriers to promptly connect all E911 calls without precaution and to require that all newly constructed mobile units be equipped to select the strongest signal whenever a call is placed. Even though CTIA and its members support the goal of broadening the availability of enhanced 911 ("E911"), the two proposals advanced by the Alliance, if adopted, will actually thwart this goal. Therefore, CTIA urges the Commission to reject Alliance's petition.

The Alliance Petition completely ignores the Commission's proposal to limit service to "service initialized" users. In fact, by granting the Alliance Petition, the FCC would allow for the continued abuse of E911 systems and services. Moreover, both wireless carriers and the public safety community are unanimous in their support for the Commission's proposal to limit 911 service to "service initialized" users.

In addition, there is no basis for Alliance's claim that cellular carriers are making it virtually impossible for "roamers" to obtain 911 service. CTIA's members support

the provision of 911 access to all service initiated CMRS customers, including customers who are roaming. Alliance provides no evidence to indicate that denial of roamer access to 911 is a problem. Nor does Alliance provide a single example of any actual problem in the provision of roamer access nor provide any basis for the Commission to conclude that the denial of roamer access is an issue requiring Commission action.

Alliance's proposal to revise Commission rules to require that all newly constructed mobile units be equipped to select the strongest signal reflects a misunderstanding of how CMRS networks control power levels and hand-off calls to provide reliable communications. CMRS networks are designed to provide reliable communications over a broad range of power levels; they are not designed, as Alliance proposes, to hand-off calls between carriers as the mobile unit moves toward and away from the strongest signals. The Alliance proposal would harm, not help, the reliability of emergency communications.

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

**COMMENTS OF THE
CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION**

telephone service may be denied or unavailable when the cellular carrier has programmed its system to block 911 calls "from transient or non-system subscribers,"⁴ and asks the Commission: (1) to amend Section 22.911(b) of the Rules to require cellular carriers to promptly connect all 911 calls without precondition; and (2) to amend Section 22.933 of the Rules to require that all newly constructed mobile units be equipped to select the strongest signal whenever a 911 call is placed.⁵

While CTIA and its members strongly support the goal of this proceeding, that is the broadened availability of enhanced 911 ("E911") services to users of wireless telecommunications, the two Alliance proposals, if adopted, actually would thwart this goal. Therefore, CTIA urges the Commission to deny the Petition.

Administrators, and the Association of Public-Safety Communications Officials-International in this docket.

⁴ See Petition at 4.

⁵ Although the Alliance urges the Commission "to fix today's 911 cellular access problems and tomorrow's PCS products," Petition at 2, the Petition does not address PCS (and the absence of Commission-mandated technical specifications to insure compatibility of PCS mobile and base stations).

I. There Is No Basis for the Commission to Require CMRS Carriers to Connect 911 Calls.

Alliance asks the Commission to amend its rules to address cellular system blocking of 911 calls "from transient or non-system subscribers."⁶ While the Petition makes no attempt to justify its request, Alliance's original comments in this proceeding shed some light on the basis of the request.

In its Comments,⁷ Alliance took issue with the Commission's proposal to require CMRS providers to provide 911 service only to "service-initialized" users and "subscribed-to" roamers.⁸ The Alliance Comments observed that "the blocking of unsubscribed 911 access is a current practice," and asserted that "cellular carriers are beginning to take steps which would make it virtually impossible for 'roamers' to obtain 911 service."⁹ Although the Petition lumps these two very different situations into a single category, the provision of 911 service to non-

⁶ See Petition at 4.

⁷ Comments of Consumers First and the Ad Hoc Alliance for Public Access to 911, CC Docket No. 94-102 (filed January 9, 1995) ("Alliance Comments").

⁸ See Revision of the Commission's Rules to Ensure Compatibility with Enhance 911 Emergency Calling Systems, CC Docket No. 94-102, Notice of Proposed Rulemaking, 9 FCC Rcd 6170 (1994) ("NPRM") at para. 41; Alliance Comments at 2.

⁹ Alliance Comments at 3.

activated phones and the provision of service to roamers are independent issues.

A. Carriers and the Public Safety Community Support the Commission's Proposal to Limit 911 Service to "Service Initialized" Users.

The Petition completely ignores the record already developed in this proceeding in support of the Commission's proposal to limit 911 service to "service initialized" users. Both carriers and the public safety community are unanimous in their support for the Commission's proposal to limit 911 service to "service initialized" users, albeit for different reasons.

The Association of Public-Safety Communications Officials-International, the National Emergency Number Association, and the National Association of State Nine One One Administrators (the "Joint Commenters") filed Joint Comments in this docket which state with respect to 911 availability that "there may be practical limitations requiring a wireless unit to be 'service initialized' and we accept those limitations."¹⁰ In fact, "re-ring/call back" capability is a major priority of the Joint Commenters and their individual members.¹¹ Since only a service

¹⁰ Joint Comments at 36.

¹¹ See Joint Comments at 43-44; see also, Comments of National Emergency Number Association, North Carolina Chapter, at 2 ("the inability to obtain the telephone number of wireless telephone users when they dial 9-1-1 robs our Public Safety Telecommunicators of another critical piece of

initialized phone will have a valid and unique Mobile Identifier Number ("MIN") which a PSAP can use to re-ring (call back) a 911 caller, the provision of re-ring/call back capability requires a valid and unique telephone number.

As the Commission knows, manufacturers ship cellular mobile units with factory set Electronic Serial Numbers and but with no pre-set MIN. The MIN is assigned by the carrier when the customer activates the phone. Thus, a brand new unactivated phone will have no MIN associated with it, making it impossible for the PSAP to re-ring the caller. On the other hand, if a mobile unit previously had been service-initiated, the unit will contain a MIN. Re-ringing that MIN might misdirect the call to the original

information. Without that telephone number computerized display, we find ourselves unable to call the wireless telephone user back to obtain more information about an emergency. In a Law Enforcement scenario, it also prevents investigators from being able to recontact victims, witnesses, and sometimes even criminals themselves."); U.S. Department of Transportation, United States Coast Guard, Comments of the Interagency Committee on Search and Rescue, at 7 ("a call-back capability would allow rescue forces or emergency service providers to talk to the victim during the rescue. This can contribute greatly to the chances of survival. This capability can also assist in guiding responders to the site and apprise them of the current situation."); Comments of Oregon State Police Emergency Management Division, at 5 ("we need the ability to call the caller back"); Comments of the Texas Advisory Commission on State Emergency Communications, at 9-10 (TX-ACSEC agrees ... that a user must have the ability to reach emergency services from any service initialized mobile radio handset.... *** Re-ring/call back is an extremely vital feature of enhanced 9-1-1 that must be required for wireless service").

subscriber. For example, if a cellular customer sells an automobile with an installed mobile unit and does not physically remove the mobile unit from the car, but rather deactivates the phone by transferring the MIN to a new mobile unit (linking the original MIN with the new mobile unit's unique ESN), a PSAP calling back a 911 caller who had used the original (and now unactivated) phone could be directed instead to the subscriber with the valid MIN/ESN pair.¹²

As the Joint Commenters, and their individual members, advised the Commission in their Comments, re-ring/call back is needed to facilitate the rendering of assistance and emergency service.¹³ Just as important, it is needed to thwart hoaxes and false alarms. As the attached newspaper article from the November 12, 1995 Richmond (VA) *Times-Dispatch* makes clear, this is not a hypothetical concern, but a very real threat.¹⁴ As the *Times-Dispatch* reported, a 20 year old man recently used a cloned cellular phone to

¹² No one ever has proposed passing both the MIN and ESN to a PSAP. Even if the necessary network protocols could be developed, and the landline network was able to transmit the additional digits, maintaining the confidentiality of valid MIN/ESN pairs is critical to the security of a wireless network.

¹³ See n. 11, *supra*.

¹⁴ "Cellular Firms Help Police Find Cloned Numbers," *Richmond Times-Dispatch* (Nov. 12, 1995). Attached hereto as Exhibit 1.

make a series of bomb threats by calling 911. Because the man was using a cloned cellular phone, the carrier and the PSAP could not identify the caller. As a result, it took a week to locate the caller, during which time the false bomb threat calls went through a lull and then intensified, tying up limited 911 capacity and shutting down numerous businesses. By granting the Alliance Petition, the FCC would open this scenario to anyone with access to a non-service activated cellular mobile unit.

If the Commission seeks to respond favorably to the expressed need of the Joint Commenters for re-ring/call back capability, and discourage hoaxes and false alarms, then the Commission must reject Alliance's request concerning the provision of 911 service to non-service activated mobile units.

B. There Is No Basis to Mandate the Provision of "Roamer" Access.

In its initial comments, Alliance asserted that "cellular carriers are beginning to take steps which would make it virtually impossible for "roamers" to obtain 911 service."¹⁵ There is no basis for this claim. While CTIA is aware of instances where carrier installation of antifraud software has had the unintended effect of

¹⁵ Alliance Comments at 3. In support of this claim, Alliance cited a single *USA Today* newspaper article.

restricting "roamer" customers' access to 911, these instances have been transitory exceptions, not the rule. CTIA's members support the provision of 911 access to all service-initiated CMRS customers, including customers who are roaming.

Alliance provides absolutely no evidence to indicate that denial of roamer access to 911 is a problem. In its original comments, Alliance referenced a news report in *USA Today* concerning the temporary cessation of the roaming agreement between the non-wireline cellular systems in Washington, D.C. and New York City. Based seemingly on this single report, Alliance jumped to the false conclusion that access to 911 service had been denied to Washington, D.C. customers roaming in New York City. In fact, provision of 911 access to roamer customers in New York City was unaffected and remained in place throughout the temporary suspension of the intercarrier roamer agreement reported in *USA Today*. This is because the provision of 911 access is controlled by the serving carrier (in this case, AT&T Wireless in New York City) and is not linked to the existence of a valid roaming agreement.

Nearly a year ago, Alliance claimed roamer access would become a major problem. Alliance now has petitioned the Commission for a sweeping rule change based solely on its own mistaken association of roamer access with access for

non-service-activated mobile units. In fact, Alliance has failed to provide a single example of any actual problem in the provision of roamer access, and has provided no other basis for the Commission to conclude that the denial of roamer access is an issue requiring Commission action.¹⁶

CTIA and its members have worked extensively in the absence of governmental mandates to promote the availability of 911 access from service-initiated CMRS phones. CTIA believes the Commission is correct to recognize that 911 availability must be tied to the activated status of the mobile phone -- otherwise the phone will not have a valid MIN, and without a valid MIN, PSAPs will be denied re-ring/callback capability. Furthermore, the lack of a valid MIN invites frivolous use that can harass legitimate businesses, needlessly risk the public safety, and actually impede access to 911 services. In addition, nearly a full year after the Alliance first advised the Commission of its "expectation" that cellular carriers would "drastically increase" blocking of 911 access,¹⁷ Alliance has failed to

¹⁶ The Commission's rules already require cellular system licensees to provide service upon request to all cellular subscribers in good standing, including roamers. See 47 CFR § 22.901. In the absence of compatibility standards, expanding this rule to PCS would be problematic.

¹⁷ Alliance Comments at 3.

provide any evidence to support its request for Commission action.

II. There Is No Basis to Require Mobile Units to Select the Strongest Signal for 911 Calls.

The Petition also asks the Commission to amend Section 22.933 of its Rules to require that all newly constructed mobile units be equipped to select the strongest signal whenever a 911 call is placed. This proposal reflects a naive misunderstanding of how CMRS networks dynamically control power levels and hand-off calls to provide reliable communications, and if adopted would lead to more dropped calls and less reliable emergency communications.

CMRS mobile units and base stations constantly monitor and adjust their signal strength as the user moves towards and away from any one base station.¹⁸ Such measurements are required both to minimize interference and to "hand-off" a call as the user moves from one cell to another.¹⁹ The use of dynamic power control permits wireless systems to provide

¹⁸ As a consequence, a "strong" base station signal (indicating close proximity to the cell site) will correspond to a low mobile unit transmitter power level.

¹⁹ See generally, Reference Manual for Telecommunications Engineering, Second Edition (John Wiley & Sons, Inc., 1994) at 1198 *et seq.* ("the mobile unit samples signal levels of all appropriate setup channels so it can respond through the cell site offering the highest signal level").

reliable communications over a range of signal strengths.²⁰ If there is sufficient signal strength to initiate a call, the CMRS system will monitor and adjust the mobile unit's power level to insure a reliable connection.²¹ The Petition seeks to create a solution for what is not a problem.

While CMRS networks are designed to provide reliable communications over a broad range of power levels, they are not designed to hand-off calls between networks within a market as Alliance seemingly desires. Under the rule proposed by Alliance, 911 calls would be handed off between carriers as the mobile unit moved towards and away from the strongest signals.²²

Wireless networks are carefully engineered to maximize frequency reuse (and spectral efficiency) while minimizing interference and dropped calls. Existing cellular networks

²⁰ See, Section 2.1.2.2, "Cellular System Mobile Station-Land Station Compatibility Specification" (April 1981 Ed.), OET Bulletin No. 53.

²¹ If the home carrier's signal is inadequate or the customer is out of range of the home system, the Commission's existing rules for cellular service require all mobile units to permit "roaming" on the "non-preferred" cellular band. See generally, Sections 2.3.9, 2.3.10, 2.6.2.1, and 2.6.2.5 "Cellular System Mobile Station-Land Station Compatibility Specification" (April 1981 Ed.), OET Bulletin No. 53. Thus, no rule change is required.

²² The rule proposed by Alliance would make even less sense if it required 911 calls be directed to the strongest signal only at the time the call was initiated since signal strength rises and falls as the mobile unit approaches and travels away from the original cell.

are not designed to dynamically hand-off calls between "A" and "B" block systems.²³ Moreover, a requirement to hand-off 911 calls to the strongest channel could trigger unnecessary hand-offs as the mobile unit moved through two completely different sets of base stations, even if the caller remained wholly within the coverage area of the originating base station. Finally, Alliance's sole focus is on the mobile unit rather than the switch; in fact, it is the switch, not the mobile unit, that controls the actual hand-off.

The Commission should reject Alliance's proposal to require mobile units to select the strongest signal for 911 calls because the proposed cure is much worse than the imagined disease.

²³ There is no present capability to hand-off calls between cellular and PCS systems, simply because there are no dual band phones. In addition, intersystem hand-offs between PCS systems will not be possible if, as appears likely, PCS licensees deploy single mode digital phones using incompatible digital standards.

CONCLUSION

For the foregoing reasons, the Commission should deny the Alliance Petition and reject the proposed changes to the Commission's rules.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Michael Altschul", written over a horizontal line.

Michael Altschul
Vice President and
General Counsel

Randall S. Coleman
Vice President,
Regulatory Policy & Law

**CELLULAR TELECOMMUNICATIONS
INDUSTRY ASSOCIATION**
1250 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036

December 15, 1995

Cellular firms help police find cloned numbers

EXHIBIT 1

Providers using high-tech methods to battle increasing phone fraud

BY MICHAEL MARTZ

TIMES-DISPATCH STAFF WRITER

A pirated cellular telephone number was the weapon for a malicious calling spree that spun out of control.

The calls began on Halloween night with a bomb threat to the cellular 911 emergency line. Taunting and abusive, the 911 calls continued intermittently until Wednesday morning, when the Virginia State Police arrested a 20-year-old Henrico County man.

The arrest was a relief to local cellular telephone companies, which have been fighting a rising problem with fraud, particularly involving stolen or cloned cellular numbers.

"We have seen a marked increase in cloning fraud. . . . It's definitely spiked up," said Ralph Martinez, GTE Mobilnet Inc.'s general manager in central Virginia.

In the week after the first Halloween call, a Richmond-area cellular telephone company used a combination of high-technology and human patience to help authorities find the man.

The alleged caller, Adam Martin Besthoff, unwittingly had demonstrated both the vulnerability of wireless communications and the increasing sophistication of fraud-busting techniques used by the cellular telephone industry.

"We threw just about every trick in the book at him," said Don Kitchen, network manager for GTE.

Usually, the motive for cloning is economic. Cellular bandits use stolen numbers to make expensive telephone calls. Customers don't know they've been robbed until they receive their monthly bill.

The good news is that subscribers don't have to pay for calls they didn't make. Cellular companies foot the bill. Last year, fraud cost the cellular industry an estimated

\$482 million, or more than \$1.3 million a day.

"We eat the cost," Martinez said. "This is not a victimless crime."

Besthoff's alleged motive was different. "This guy was just being a jerk," said Miles Turner, a state police dispatcher who handled many of the calls.

However, Turner said the 911 calls were no less costly to the cellular company, law enforcement authorities and businesses that were shut down because of bomb threats.

"The worst thing is, somebody who has a legitimate emergency might not be able to get through," he said.

The state police has three lines for handling all cellular 911 calls made in 24 counties and five cities.

The problem was not new for GTE. The company's expertise made it a key player in the law enforcement probe, which included the U.S. Secret Service and Federal Communications Commission, as well as the state police.

"If we hadn't been involved, they probably wouldn't have been able to pull it off," Kitchen said. "They didn't even know what the phone number was until we got involved."

State police contacted GTE on Nov. 1, the morning after the first call. Kitchen's staff looked at every 911 call made around the time of the bomb threat. They determined that it was a number for a customer in Williamsburg.

"The legitimate user was unaware of anything that was going on," Kitchen said.

Cellular telephone numbers can be cloned, or stolen, in various ways. The thief needs the number and the electronic serial number assigned to a phone. The phone number allegedly stolen by Besthoff was partially cloned because the electronic serial number of the call-

Firms help police find cloned numbers

▼ CLONE FROM PAGE E1

er didn't match the subscriber's. That was one way GTE officials identified the number of the caller, who could call only 911 without the proper serial number.

A professional thief has to clone both numbers to complete calls. Sometimes the thief gets the numbers by stealing the phone itself, and other times by buying black-market chips for reprogramming phones.

Most often, however, the numbers are stolen from thin air. Electronic devices are available that can read a cellular number and serial number from the electronic signal emitted by the phone, even when the handset isn't being used. The signal is necessary for the cellular network to locate the phone to complete calls.

"Our belief is that the cloning out there is being done with electronic devices," said Scott Besselièvre,

general manager of the CellularOne franchise in the Richmond area.

The franchise, owned primarily by BellSouth Corp., hasn't noticed the rise in cellular fraud that GTE has seen. "I don't know if it's getting any worse," said R. Kent Meske, director of sales and marketing. "It doesn't go away."

However, CellularOne also is using increasingly sophisticated methods of fighting fraud. The company has computer equipment and software that can detect an irregular calling pattern immediately — for example, if the same number is used to make a call in Virginia and a call in New York City at roughly the same time.

"If there is any fraud, we can identify it and effectively shut down the roaming number immediately," Besselièvre said.

Getting away with cellular telephone fraud isn't easy because the

thieves leave a trail.

"We know where, when, and who they're calling with the cloned phone," Martinez said at GTE.

To prove the point, GTE helped federal and state authorities find the path that allegedly led to Besthoff. After identifying the number, the company set a series of traps for the caller.

The caller didn't try to call anyone but 911, even though the company had given him an open line to use with other numbers. The investigation went through a long lull, but the calls resumed on Tuesday night and intensified the next morning.

Company and law enforcement officials said they tracked the calls to Besthoff, near his Chamberlayne Farms home. It took only seven minutes from the time the call began for the authorities to find Besthoff, Turner said.

"It really is not that hard to catch

people when they do this stuff," Turner said.

The state police arrested him about 9 a.m. on Wednesday, and charged him with extortion, making a bomb threat, possessing stolen goods, conspiring to commit a felony and using profane language over a telephone.

"It's an ongoing investigation," Turner said. "I think he's looking at several more charges before it's all over with."

Besthoff remained in the Henrico jail on Friday in lieu of \$65,000 bond, pending a court appearance scheduled for Nov. 17.

Cloning fraud is a federal felony that carries up to \$50,000 in fines and 15 years in prison. The practice also violates FCC regulations against counterfeiting telephone numbers.

"It is a serious problem," Kitchen said at GTE, "and we're taking a hard-line approach with it."

SUNDAY, NOVEMBER 12, 1995 ...

Richmond Times-Dispatch

WEEK IN REVIEW ... E2

TREASURY BONDS ... E3

ANDREW LEON ... E4

BUSINESS

CERTIFICATE OF SERVICE

I, Brenda K. Pennington, hereby certify that on this 15th day of December, 1995, copies of the foregoing Comments of the Cellular Telecommunications Industry Association were served either by hand-delivery or by first-class mail upon the following parties:

***Mr. William C. Caton**
Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 822
Washington, D.C. 20554

***International Transcription Service**
1919 M Street, N.W.
Room 246
Washington, D.C. 20554

Kathleen Abernathy
David A. Gross
AirTouch Communications
1818 N Street, N.W.
Washington, D.C. 20036

David L. Jones
Rural Cellular Association
2120 L Street, N.W.
Suite 520
Washington, D.C. 20037

Brent Andrew
AirTouch Communications
425 Market Street
San Francisco, CA 94105

Michael J. Miller
Telident, Inc.
451- West 77th Street
Suite 101
Minneapolis, MN 55435

Jay Keithley
Nancy McCabe
Sprint Cellular
1850 M Street, N.W.
Suite 1100
Washington, D.C. 20036

Lon C. Levin
AMSC Subsidiary Corporation
10802 Park Ridge Blvd.
Reston, VA 22091

Kevin C. Gallagher
Sprint Cellular
8725 Higgins Road
Chicago, IL 60631

Mark J. Golden
Personal Communications Industry
Association
1019 19th Street, NW, Suite 1100
Washington, DC 20036

Andre J. Lachance
David A. Gudino
GTE Corporation
1850 M Street, N.W.
Suite 1200
Washington, D.C. 20036

Jonathan D. Blake
Kurt A. Wimmer
Covington & Burling
1201 Pennsylvania Avenue, N.W.
Post Office Box 7566
Washington, D.C. 20044

Elizabeth R. Sachs
Lukas, McGowan, Nace & Gutierrez
1111 19th Street, N.W.
Suite 1200
Washington, D.C. 20036

David L. Nace
Marci E. Greestien
Lukas, McGowan, Nace & Gutierrez
1111 19th Street, N.W.
Suite 1200
Washington, D.C. 20036

Peter Connolly
Koteen & Naftalin
1150 Connecticut Avenue, N.W.
Washington, D.C. 20036

Robert S. Foosaner
Lawrence R. Krevor
Laura L. Holloway
Nextel Communications
800 Connecticut Avenue, N.W.
Suite 1101
Washington, D.C. 20006

Albert H. Kramer
Robert F. Aldrich
Keck, Mahin & Cate
2101 New York Avenue, N.W.
Penthouse Suite
Washington, D.C. 20005-3919

Jerome S. Caplan
Redcom Laboratories
One Redcom Center
Victor, New York 14564-0995

Norman P. Leventhal
Stephen D. Baruch
David S. Keir
J. Breck Blalock
Leventhal, Senter, & Lerman
2000 K Street, N.W.
Suite 600
Washington, D.C. 20006

Alicia A. McGlinchey
COMSAT Corporation
22300 COMSAT Drive
Clarksburg, MD 20871

Raul R. Rodriguez
Stephen D. Baruch
Leventhal, Senter & Lerman
2000 K Street, N.W.
Washington, D.C. 20006

R. Michael Senkowski
Jeffrey S. Linder
Ilene T. Weinreich
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006

Charles J. Hinkle, Jr.
KSI Inc.
7630 Little River Turnpike
Suite 212
Annandale, VA 22003

James D. Ellis
Mary Marks
SBC Communications
175 E. Houston
Suite 1306
San Antonio, TX 78205

Wayne Watts
Bruce E. Beard
Southwestern Bell Mobile Systems
17330 Preston Road
Suite 100A
Dallas, TX 75252

Frank Michael Panek
Ameritech
Room 4H84
2000 West Ameritech Center Dr.
Hoffman Estates, IL 60196-1025

Jean Kiddo
Shelley Spencer
Swidler & Berlin, Chtd.
3000 K Street, N.W.
Suite 300
Washington, D.C. 20007

Brian R. Moir
Moir & Hardman
2000 L Street, N.W.
Suite 512
Washington, D.C. 20036-4907

O.C. Lee
Proctor & Associates
15050 Northeast 36th
Redmond, Washington 98052-5317

Naomi L. Wu
Port Angeles Police Department
321 East 5th Street
Port Angeles, WA 98362

Arthur A. Butler
Sara Siegler-Miller
Ater Wynne Hewitt Dodson &
Skerritt
601 Union Street, N.W.
Suite 5450
Seattle, WA 98101-2327

Jeffrey Sheldon
Thomas E. Goode
UTC
1140 Connecticut Avenue, N.W.
Suite 1140
Washington, D.C. 20036

Albert Halprin
Stephen L. Goodman
Halprin, Temple & Goodman
Suite 650 East Tower
1100 New York Avenue, N.W.
Washington, D.C. 20005

Larry A. Blosser
Donald J. Elardo
MCI Corporation
1801 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

Paul Rodgers
Charles D. Gray
James B. Ramsey
NARUC
1102 ICC Building
P.O. Box 684
Washington, D.C. 20044

Susan H.R. Jones
Gardner, Carton & Douglas
1301 K Street, N.W.
Suite 900, East Tower
Washington, D.C. 20005

Robert A. Mazer
Rosenman & Colin
1300 19th Street, N.W.
Suite 200
Washington, D.C. 20036

Robert M. Gurss
Wilkes, Artis, Hedrick & Lane,
Chartered
1666 K Street, NW, Suite 1100
Washington, DC 20006

James R. Hobson
Donelan, Cleary, Wood & Maser, P.C.
1100 New York Avenue, NW, #750
Washington, DC 20005

Roy D. Meredith
P.O. Box 429
High Point, NC 27261-0429

C.J. Driscoll & Associates
2066 Dorado Drive
Rancho Palos Verdes, CA 90275

Lisa M. Zaina
OPASTCO
21 Dupont Circle, N.W.
Suite 700
Washington, D.C. 20036

Gary O'Malley
Cable Plus
11400 SE 6th Street
Suite 120
Bellevue, WA 98004

John Cusak
National Cellular Safe Talk Center
385 Airport Road
Suite A
Elgin, IL 60123

Joe Blaschka
Adcom Engineering Company
14631 128th Avenue, NE
Woodlinville, WA 98072

Jim Coran
P.O. Box 2346
Orinda, CA 94563

David C. Yandell
Oregon State Police
595 Cottage St. NE
Salem, OR 97310

James M. Dye
140 N. Marietta Pkwy
Marietta, GA 30060

Dan Morales
Jorge Vega
Laquita A. Hamilton
Thomas P. Perkins
Scott A. Sawyer
Rupaco T. Gonzalez
Scott J. Smyth
Richard A. Muscat
Consumer Protection Division
P.O. Box 12548, Capitol Station
Austin, TX 78711-2548

G.A. Penington
United States Coast Guard
2100 Second Street, SW
Washington, DC 20593-0001

Adam A. Andersen
CMT Partners
651 Gateway Blvd., 15th Floor
South San Francisco, CA 94080

Jeffrey S. Bork
U S WEST, Inc.
1020 19th Street, NW, Suite 700
Washington, DC 20036

David C. Jatlow
Young & Jatlow
2300 N Street, NW, Suite 600
Washington, DC 20037

John G. Lamb, Jr.
Northern Telecom Inc.
2100 Lakeside Blvd.
Richardson, TX 75081-1599

Martin W. Bercovici
Keller & Heckman
1001 G Street, NW, Suite 500W
Washington, DC 20001-4545

Deborah T. Poritz
Alexander P. Waugh, Jr.
S. Robert Miller
George N. Rover
NJ Dept. of Law & Public Safety
P.O. Box 7068
West Trenton, NJ 08628-0068

Al J. Notzon III
118 Broadway, Suite 400
San Antonio, TX 78205

Cellular One
350 East Wilson Bridge Road
Worthington, OH 43085

Thomas Gutierrez
Lukas, McGowan, Nace & Gutierrez,
Chartered
1111 19th Street, NW, Suite 1200
Washington, DC 20036

David Kelley
Terrapin Corporation
11958 Monarch Street
Garden Grove, CA 92641

Peter J. Tyrrell
Springwich Cellular Ltd. Partnership
227 Church Street, Room 1021
New Haven, CT 06570

Alfred Sonnenstrahl
TDI, Inc.
8719 Colesville Road, Suite 300
Silver Spring, MD 20910

Glenn S. Rabin
ALLTEL Mobile Communications
655 15th Street, NW, Suite 220
Washington, DC 20005

William T. Bradfield
Tendler Cellular
65 Atlantic Avenue
Boston, MA 02110

David Crowe
Cellular Networking Perspectives Ltd.
2636 Toronto Crescent, NW
Calgary, Alberta CN T2N 3W1

Peter Arth, Jr.
Edward W. O'Neill
Ellen S. Levine
505 Van Ness Avenue
San Francisco, CA 94102

Martha Carter
Caddo Parish Communications
1144 Texas Avenue
Shreveport, LA 71101

Bruce D. Jacobs
Glenn S. Richards
Guy T. Christiansen
Fisher Wayland Cooper
Leader & Zaragoza L.L.P.
2001 Pennsylvania Avenue, NW
Washington, DC 20006

Raymond G. Bender, Jr.
J.G. Harrington
Dow, Lohnes & Albertson
1255 23rd Street, NW, Suite 500
Washington, DC 20037

James L. Wurtz
1275 Pennsylvania Avenue, NW
Washington, DC 20004

Joseph P. Blaschka, Jr.
14631 128th Street, NE
Woodinville, WA 98072

James Carlsen
Westinghouse General Counsel
P.O. Box 746-MS A475
Baltimore, MD 21203

Edward R. Wholl
Jacqueline E. Holmes Nethersole
The NYNEX Companies
120 Bloomingdale Road
White Plains, NY 10605

David L. Jones
Rural Cellular Association
2120 L Street, NW, Suite 520
Washington, DC 20037

Lon C. Levin
AMSC Subsidiary Corporation
10802 Park Ridge Blvd., Suite 400
Reston, VA 22091

Caressa D. Bennet
Law Offices of Caressa D. Bennet
1831 Ontario Place, NW, Suite 200
Washington, DC 20009

James P. Tuthill
Betsy Stover Granger
Pacific Bell Mobile Services
140 New Montgomery Street
Room 1525
San Francisco, CA 94105